UVU UTAH VALLEY UNIVERSITY™

Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Course Prefix: CS
Course Title: Operating Systems Theory

Year: 2025
Course and Section #: 3060-X01
Credits: 3

Course Description

Introduces the Unix operating system. Presents the underlying theory and concepts of an operating system and covers the following topics in depth: device management, processes, threads, synchronization, scheduling, deadlocks, memory management, virtual memory, and file systems. Provides practical experience in writing programs that use standard Unix system calls to interface directly with the operating system.

Lab access fee of $45 for computers applies.

Course Attributes

This course has the following attributes:
☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Dr. Brian Durney

Student Learning Outcomes

Upon successful completion, students should be able to…
1. Demonstrate a working knowledge of a Unix based operating system.
2. Demonstrate a working knowledge of the standard Unix programming environment.
3. Describe the basic functions of an operating system.
4. Describe the basic components of an operating system and explain what each of these components does.
5. Explain the basic algorithms for scheduling, memory management, device management, file management, and process management.
6. Write reasonably complex programs on a Unix-based operating system correctly using Unix system calls to access operating system functions.

Course Materials and Texts

Operating System Concepts, 10th ed., by Silberschatz, Galvin, and Gagne, published by Wiley.
The 8th edition will work but chapters and page numbers will be different, and some material from the current edition will not be available.

Students will need a secure shell (SSH) client and a secure file transfer program to access and use the class server.

Course Requirements

Course Assignments, Assessments, and Grading Policy
Programming Assignments: 60% of overall grade
Quizzes: 15% of overall grade
Discussions and online participation: 5% of overall grade
Final Exam: 20% of overall grade

Final grades are rounded to the nearest tenth and assigned the corresponding letter grade:

A = 93-100	B - = 80-82.9	D+ = 67-69.9
A - = 90-92.9	C+ = 77-79.9	D = 63-66.9
B+ = 87-89.9	C = 73-76.9	D - = 60-62.9
B = 83-86.9	C - = 70-72.9	F = 0-59.9

Required or Recommended Reading Assignments
Each module will include reading assignments and reference materials related to the module's topic.

General Description of the Subject Matter of Each Lecture or Discussion
This course will have the following modules:
Module 1: Open-Source Development Tools
Module 2: Operating Systems Overview
Module 3: Processes
Module 4: Threads
Module 5: CPU Scheduling
Module 6: Synchronization
Module 7: Deadlock
Module 8: Main Memory
Module 9: Virtual Memory
Module 10: Mass Storage
Module 11: File-System Interfaces
Module 12: File-System Implementation
Module 13: I/O Systems
Module 14: Security
Module 15: Review and final exam

Required Course Syllabus Statements

Generative AI
Use generative AI tools (like ChatGPT or Copilot) as learning assistants, not as a crutch. If you use one, cite it at the top of your code. You are responsible to make sure that you understand the code or content

and that it does what it is supposed to do and says what you want it to say. Don't accept anything it generates at face value without checking it critically. If using AI tools helps you learn some things faster, great. Just remember: If you really want to be good, work for it.

Using Remote Testing Software
☐ This course does not use remote testing software.

☒ This course uses remote testing software for the final exam. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.